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# PRE-APPEAL BRIEF REQUEST FOR REVIEW

MTU.0022US

August 31, 2007

Hannah J. Pak

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:	§	
Noriya Hayashi	§	Art Unit: 1796
	§	
Serial No.: 10/588,331	§	Examiner: Hannah J. Pak
	§	
Filed: August 31, 2007	§	Docket: MTU.0022US
	§	(1392-US)
For: Neutron Shielding Material	§	
Composition, Shielding	§	Conf. No.: 5747
Material and Container	§	

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**STATEMENT IN SUPPORT OF  
PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Pre-appeal brief review is requested only with respect to the rejection of claim 12.

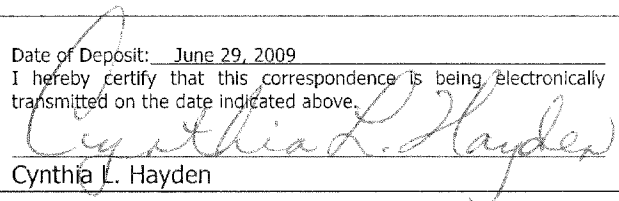
The Examiner states on page 3, second paragraph of the Advisory Action that Anayama et al. disclose the high density inorganic material (corresponding to the claimed density-increasing agent) having metal powders with a density of at least 2.0 g/cm<sup>3</sup> or above, which overlaps with the claimed range (5.0-22.5 g/cm<sup>3</sup>). She also states on page 4 that the claims do not specifically recite a low density composition. Clearly, her attention is directed to claim 9, while reconsideration of the rejection of claim 12 was respectfully requested.

**I. Written Description**

With respect to the lack of written description rejection, it is believed that there are two possible issues. The first issue would be whether or not the claim improperly claims refractory material having any density that is higher than that of the hydrogenated bisphenol resin. The other possible issue is that the claim improperly claims any refractory material, any hydrogenated bisphenol or any density increasing agent.

Date of Deposit: June 29, 2009

I hereby certify that this correspondence is being electronically transmitted on the date indicated above.

  
Cynthia L. Hayden

According to the cited section of the Manual of Patent Examining Procedure, in many cases, even one example is sufficient to provide the written description where the information would be understood by one skilled in the art to indicate that the applicant had possession of the entire claimed range.

**A. Section 112 Disclosure of Claimed Materials**

Here we have, with respect to the limitations to the materials, a disclosure of lots of different examples. For example, the resin is explained at page 6, starting at line 21 and several examples are given on page 7, line 1 through page 8, line 6. This is a well understood material whose behavior is entirely predictable.

Examples of refractory materials are given on page 17, lines 11 *et seq.* One skilled in the art would understand that the refractory material could be lots of things. The chemical activity of refractory materials is not complex or difficult to determine, as would be the case with genetic materials. Thus, one skilled in the art would have every reason to believe that if any refractory material was affected, they all would be affected.

With respect to the density increasing agent, since its function is relatively apparent, it is believed that one skilled in the art would not need a recitation of an endless list, like things that merely increase or decrease density. Many examples are given of the density increasing agent at page 15, lines 1-8.

Thus, a large number of examples are given for each claimed material and, under the cited Manual of Patent Examining Procedures section, it is clear that a wide range of materials is supported by the specification.

Since one skilled in the art could have measured by any instruments or known by any documents the density of the exemplified components, all one has to do would be to properly select or combine the components so as to satisfy the claimed density relations. In other words, the density relations recited in claim 1 do restrict the combination of each component.

**B. Section 112 Claimed Density Increase**

If, instead, the rejection is premised on the position that claiming "any" increase in density is insufficiently supported, all increased density ranges are covered in the cited application with respect to Figure 2. Anything above the horizontal line in Figure 2 is an

increase in density. One skilled in the art would see that the characteristics of any increase in density are apparent. While the hydrogen content may not increase substantially, at densities over about .15 grams per milliliter, those skilled in the art could realize that you still could use those materials. Thus, there is no reason to believe that, for example, Figure 2 does not teach any range of density increase of very small to infinite.

Therefore, reconsideration would be appropriate.

Moreover, claim 12 is directed to a specific density range for the composition.

## **II. Prior Art Rejection**

Reconsideration of the rejection of claim 12 is respectfully requested.

In the Response to Arguments (page 10, lines 4-9), the Examiner states that Anayama discloses: (i) employing high density inorganic materials having a density of at least 2.0 g/cm<sup>3</sup> or above in a neutron shielding material composition (ii) to obtain a higher and more effective shielding effect on neutron rays.

Regarding (i), the molded article (as opposed to the high density organic material) does have a density of at least 2.0 (see page 3, lines 48-49), but the molded article is not the claimed higher density organic material. Regarding (ii), high density inorganic materials are added in order to increase shieldability on gamma rays and X- rays, not neutron rays (see page 3, lines 31-33).

Anayama discloses in lines 31-33 of page 3 that "The higher the density of an inorganic material is, the greater the shielding effect thereof on gamma- and X-rays is, and an element having a greater thermal neutron capture cross section or a material containing such an element in a larger amount has a greater shielding effect on neutron rays." Anayama also discloses in lines 47-51 of page 3, "When the above mixture or composition is cured and molded, the resulting molded article must have a density of at least 2.0. If it has a density of less than 2.0, its shielding effect on gamma- and X-rays is inferior whereby simulating shielding of these different rays is made impossible."

In view of the above description of Anayama, the skilled person could have tried to decrease the amount of the resin component and increase the amount of density-increasing agent to increase molded density. This must be so because the density of the density-increasing agent

is much larger than that of resin component, and the replacement of resin component by the density increasing agent is the most effective way to raise the density of the molded article.

The replacement of resin component by density-increasing agent would raise the density of the molded article compared to that of the article made of the resin component only. The support for the above arguments can be found in the table of the working examples of Anayama. The density of the molded article which contains high density inorganic material is much higher (i.e. 2.23-3.81 g/cm<sup>3</sup>) than that of the molded article made of epoxy resin (i.e. 1.35 g/cm<sup>3</sup>).

On the contrary, the density of the composition of claim 12 is a lower range of 1.62-1.72 g/cm<sup>3</sup>. This necessarily must be done by increasing the weight ratio of resin component compared to a prior art two-component system containing resin component and the refractory material.

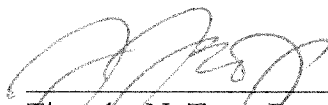
Accordingly, Anayama teaches replacing the resin component by the density increasing agent while the composition of claim 12 teaches increasing the resin component and decreasing the refractory material to obtain the claimed lower density.

The admission that a high density composition is result effective (office action, page 8) demonstrates non-obviousness. There would be no reason, that would be appreciated by one skilled in the art, to use the claimed lower range, if high density was considered result effective by one skilled in the art. In fact, it seems indisputable that a lower density of the composition would not be result effective and one skilled in the art would not appreciate such a result.

In conclusion, the skilled person could not have conceived of claim 12 in view of Anayama. Particularly, Anayama teaches to push the density up, well above the claimed range. Thus, Anayama teaches directly away from the claimed ranged.

Respectfully submitted,

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